## WHAT IS CLAIMED IS:

- 1. A compound having the structure MgX<sup>1</sup>X<sup>2</sup>, wherein X<sup>1</sup> is parecoxib anion and X<sup>2</sup> is selected from the group consisting of parecoxib anion, chloride, bromide, sulfate, phosphate, nitrate, acetate, propionate, succinate, glycolate, stearate, lactate, malate, tartrate, citrate, ascorbate, glutamate, benzoate, salicylate, methanesulfonate, and toluenesulfonate.
- The compound of Claim 1 substantially in the form of magnesium
  diparecoxib.
  - 3. The compound of Claim 2 wherein the molar ratio of parecoxib anion to  $Mg^{2+}$  is at least about 1.5 and equal to or less than about 2.5.
- 15 4. The compound of Claim 3 in the form of a crystal.
  - 5. The compound of Claim 4 wherein the crystals have an average particle size of less than about 20  $\mu$ m as determined by a Horiba Particle Sizer.
- 20 6. The compound of Claim 4 wherein the crystal has a surface to volume ratio less than about 12  $\mu$ m<sup>-1</sup>.
- 7. A compound having the structure MX<sup>1</sup>(X<sup>2</sup>)<sub>n</sub> wherein:
  M is a metal cation selected from the group consisting of Ca<sup>2+</sup>, Zn<sup>2+</sup>, and
  25 K<sup>+</sup>;

X<sup>1</sup> is parecoxib anion;

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 $\chi^2$  is selected from the group consisting of parecoxib anion and another pharmaceutically acceptable anion; and

n is 0 when M is  $K^{+}$  and n is 1 when M is  $Ca^{2+}$  or  $Zn^{2+}$ .

- 8. A pharmaceutical composition comprising the compound of Claim 3 or Claim 7 and at least one excipient.
- 9. The composition of Claim 8 wherein the excipient comprises at least one

agent selected from the group consisting of an anti-oxidant, a preservative, and a moldable agent.

- 10. The composition of Claim 8 comprising magnesium diparecoxib in an amount at least about 20% by weight of the total dosage form.
  - 11. The composition of Claim 8 in a form selected from the group consisting of a pill, a tablet, a capsule, a solution, and a suspension.
- 10 12. The composition of Claim 8 suitable for injection into at least one parenteral site selected from the group of sites consisting of intradermal, intramuscular, intraarticular, intraperitoneal, intralymphoid, subcutaneous, and subdural.
- 15 13. The composition of Claim 8 wherein, upon injection into the at least one parenteral site, the dosage form provides at least one of:
  - (a) a therapeutic level of valdecoxib within about 5 hours after injection;
  - (b) a therapeutic level of valdecoxib for at least about 3 days after injection; and/or
- 20 (c) a time to reach one half maximum blood serum concentration of valdecoxib not greater than about 10 hours after injection.
- 14. A method for providing a long-acting selective COX-2 inhibitory effect comprising injecting into a subject an amount of the composition of Claim 8
  25 sufficient to produce said long acting selective COX-2 inhibitory effect.